

NM1 - 9

MONITORING REPORTS

YEAR(S):

2009

**EPA METHOD 8021
 AROMATIC VOLATILE ORGANICS**

Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #1	Date Reported:	10-21-09
Laboratory Number:	52113	Date Sampled:	10-14-09
Chain of Custody:	8191	Date Received:	10-14-09
Sample Matrix:	Soil	Date Analyzed:	10-20-09
Preservative:	Cool	Date Extracted:	10-19-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	ND	1.0
Ethylbenzene	ND	1.0
p,m-Xylene	ND	1.2
o-Xylene	ND	0.9
Total BTEX	ND	

ND - Parameter not detected at the stated detection limit.

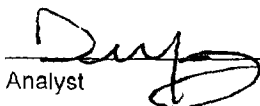
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	96.0 %
	1,4-difluorobenzene	96.0 %
	Bromochlorobenzene	96.0 %

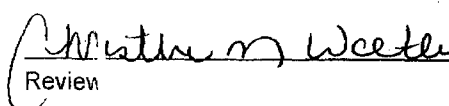
References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Method: for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm 3' Below Treatment Zone.**

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 Analyst


 Review

Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #2	Date Reported:	10-21-09
Laboratory Number:	52114	Date Sampled:	10-14-09
Chain of Custody:	8191	Date Received:	10-14-09
Sample Matrix:	Soil	Date Analyzed:	10-20-09
Preservative:	Cool	Date Extracted:	10-19-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	ND	1.0
Ethylbenzene	ND	1.0
p,m-Xylene	ND	1.2
o-Xylene	ND	0.9
Total BTEX	ND	

ND - Parameter not detected at the stated detection limit.

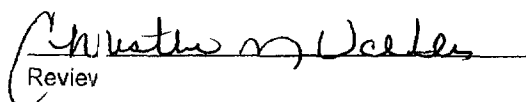
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	97.0 %
	1,4-difluorobenzene	97.0 %
	Bromochlorobenzene	97.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Method for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm 3' Below Treatment Zone.**


 Analyst


 Review

Client:	N/A	Project #:	N/A
Sample ID:	10-20-BT QA/QC	Date Reported:	10-21-09
Laboratory Number:	52113	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	10-20-09
Condition:	N/A	Analysis:	BTEX

Compound (ug/kg)	Sample	Duplicate	% Diff	Accept Range	Detect Limit
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Benzene	8.9065E+005	8.9243E+005	0.2 %	ND	0.1
Toluene	8.2358E+005	8.2523E+005	0.2 %	ND	0.1
Ethylbenzene	7.4480E+005	7.4629E+005	0.2 %	ND	0.1
p,m-Xylene	1.8287E+006	1.8324E+006	0.2 %	ND	0.1
o-Xylene	7.0468E+005	7.0609E+005	0.2 %	ND	0.1

Compound (ug/kg)	Sample	Duplicate	% Diff	Accept Range	Detect Limit
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Benzene	ND	ND	0.0 %	0 - 30%	0.9
Toluene	ND	ND	0.0 %	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0 %	0 - 30%	1.0
p,m-Xylene	ND	ND	0.0 %	0 - 30%	1.2
o-Xylene	ND	ND	0.0 %	0 - 30%	0.9

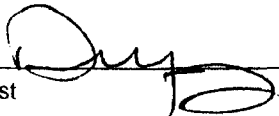
Spike Conc. (ug/kg)	Sample	Amount Spiked	Spiked	% Recovery	Accept Range
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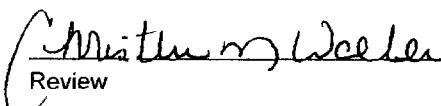
Benzene	ND	50.0	51.2	102%	39 - 150
Toluene	ND	50.0	51.0	102%	46 - 148
Ethylbenzene	ND	50.0	51.0	102%	32 - 160
p,m-Xylene	ND	100	98.5	98.5%	46 - 148
o-Xylene	ND	50.0	52.6	105%	46 - 148

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste SW-846, USEPA, December 1996.
 Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 52113, 52114, 52120, 52121, 52137, 52138, 52151, 52157, 52158, and 52168.

Analyst 

Review 

Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #1	Date Reported:	10-19-09
Laboratory Number:	52113	Date Sampled:	10-14-09
Chain of Custody:	8191	Date Received:	10-14-09
Sample Matrix:	Soil	Date Analyzed:	10-16-09
Preservative:	Cool	Date Digested:	10-16-09
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	0.051	0.001
Barium	5.93	0.001
Cadmium	0.001	0.001
Chromium	0.135	0.001
Lead	0.212	0.001
Mercury	ND	0.001
Selenium	0.002	0.001
Silver	ND	0.001

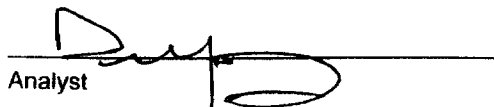
ND - Parameter not detected at the stated detection limit.

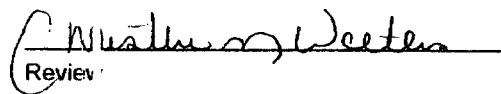
References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils.
SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C
section 261.24, August 24, 1998.

Comments: **Landfarm, 3' Below Treatment Zone.**


Analyst


Reviewer

Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #2	Date Reported:	10-19-09
Laboratory Number:	52114	Date Sampled:	10-14-09
Chain of Custody:	8191	Date Received:	10-14-09
Sample Matrix:	Soil	Date Analyzed:	10-16-09
Preservative:	Cool	Date Digested:	10-16-09
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	0.131	0.00
Barium	47.5	0.00
Cadmium	0.004	0.00
Chromium	0.557	0.00
Lead	0.838	0.00
Mercury	0.014	0.00
Selenium	0.015	0.00
Silver	ND	0.00

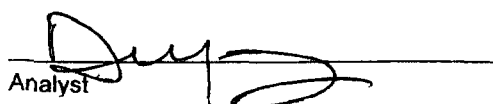
ND - Parameter not detected at the stated detection limit.

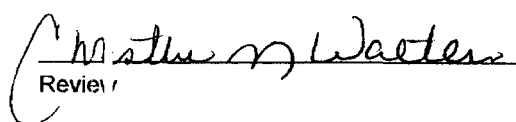
References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils.
SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C
section 261.24, August 24, 1998.

Comments: **Landfarm, 3' Below Treatment Zone.**


Analyst


Reviewer

TRACE METAL ANALYSIS
Quality Control /
Quality Assurance Report

Client:	QA/QC	Project #:	QA/QC
Sample ID:	10-16 TM QA/AC	Date Reported:	10-19-09
Laboratory Number:	52092	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Analysis Requested:	Total RCRA Metals	Date Analyzed:	10-16-09
Condition:	N/A	Date Digested:	10-15-09

Element	Result	Unit	Method	Recovery	Recovery %	Recovery Range
Arsenic	ND	ND	0.001	0.140	0.145	3.6% 0% - 30%
Barium	ND	ND	0.001	5.73	5.65	1.3% 0% - 30%
Cadmium	ND	ND	0.001	0.015	0.015	0.0% 0% - 30%
Chromium	ND	ND	0.001	0.456	0.462	1.4% 0% - 30%
Lead	ND	ND	0.001	0.766	0.300	4.5% 0% - 30%
Mercury	ND	ND	0.001	ND	ND	0.0% 0% - 30%
Selenium	ND	ND	0.001	0.012	0.015	25.0% 0% - 30%
Silver	ND	ND	0.001	ND	ND	0.0% 0% - 30%

Element	Result	Unit	Method	Recovery	Recovery %	Recovery Range
Arsenic	0.250	0.140	0.397	102%		80% - 120%
Barium	0.500	5.73	5.97	105.9%		80% - 120%
Cadmium	0.250	0.015	0.237	95.5%		80% - 120%
Chromium	0.500	0.456	1.03	107%		80% - 120%
Lead	0.500	0.766	1.18	134%		80% - 120%
Mercury	0.100	ND	0.114	114%		80% - 120%
Selenium	0.100	0.012	0.104	129%		80% - 120%
Silver	0.100	ND	0.112	112%		80% - 120%

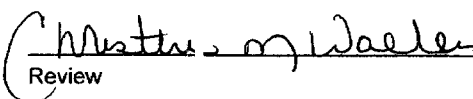
ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils.
 SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 52092, 52113 - 52114, 52119 and 52122.**


 Analyst


 Review

Client: Key Energy Disposal
 Sample ID: Cell #1
 Laboratory Number: 52113
 Chain of Custody: 8191
 Sample Matrix: Aqueous
 Preservative: Cool
 Condition: Intact

Project #: 98065-0013
 Date Reported: 10-23-09
 Date Sampled: 10-14-09
 Date Received: 10-14-09
 Date Extracted: N/A
 Date Analyzed: 10-20-09

Parameter	Analytical Result	Units		
pH	6.50	s.u.		
Conductivity @ 25° C	912	umhos/cm		
Total Dissolved Solids @ 180C	630	mg/L		
Total Dissolved Solids (Calc)	640	mg/L		
SAR	6.6	ratio		
Total Alkalinity as CaCO ₃	108	mg/L		
Total Hardness as CaCO ₃	134	mg/L		
Bicarbonate as CaCO ₃	108	mg/L	1.77	meq/L
Carbonate as CaCO ₃	<0.1	mg/L	0.00	meq/L
Hydroxide as CaCO ₃	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.056	mg/L	0.00	meq/L
Nitrite Nitrogen	0.001	mg/L	0.00	meq/L
Chloride	175	mg/L	4.94	meq/L
Fluoride	2.31	mg/L	0.12	meq/L
Phosphate	0.066	mg/L	0.00	meq/L
Sulfate	173	mg/L	3.60	meq/L
Iron	0.106	mg/L	0.00	meq/L
Calcium	32.2	mg/L	1.61	meq/L
Magnesium	13.1	mg/L	1.08	meq/L
Potassium	3.29	mg/L	0.08	meq/L
Sodium	176	mg/L	7.66	meq/L
Cations			10.42	meq/L
Anions			10.43	meq/L
Cation/Anion Difference			0.08%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
 Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm 3' Below Treatment Zone.**

Analyst

Review

Client: Key Energy Disposal
 Sample ID: Cell #2
 Laboratory Number: 52114
 Chain of Custody: 8191
 Sample Matrix: Aqueous
 Preservative: Cool
 Condition: Intact

Project #: 98065-0013
 Date Reported: 10-23-09
 Date Sampled: 10-14-09
 Date Received: 10-14-09
 Date Extracted: N/A
 Date Analyzed: 10-20-09

Parameter	Analytical Result	Units		
pH	6.79	S.U.		
Conductivity @ 25° C	1,590	umhos/cm		
Total Dissolved Solids @ 180C	920	mg/L		
Total Dissolved Solids (Calc)	870	mg/L		
SAR	8.2	ratio		
Total Alkalinity as CaCO ₃	94.0	mg/L		
Total Hardness as CaCO ₃	166	mg/L		
Bicarbonate as CaCO ₃	94.0	mg/L	1.54	meq/L
Carbonate as CaCO ₃	<0.1	mg/L	0.00	meq/L
Hydroxide as CaCO ₃	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	1.50	mg/L	0.02	meq/L
Nitrite Nitrogen	1.17	mg/L	0.03	meq/L
Chloride	212	mg/L	5.98	meq/L
Fluoride	1.82	mg/L	0.10	meq/L
Phosphate	0.787	mg/L	0.02	meq/L
Sulfate	293	mg/L	6.10	meq/L
Iron	0.195	mg/L	0.01	meq/L
Calcium	42.5	mg/L	2.12	meq/L
Magnesium	14.5	mg/L	1.19	meq/L
Potassium	4.18	mg/L	0.11	meq/L
Sodium	243	mg/L	10.57	meq/L
Cations			13.99	meq/L
Anions			13.79	meq/L
Cation/Anion Difference			1.45%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
 Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm 3' Below Treatment Zone.**

Analyst

Review

Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #1	Date Reported:	10-20-09
Laboratory Number:	52113	Date Sampled:	10-14-09
Chain of Custody No:	8191	Date Received:	10-14-09
Sample Matrix:	Soil	Date Extracted:	10-20-09
Preservative:	Cool	Date Analyzed:	10-20-09
Condition:	Intact	Analysis Needed:	TPH-418.1

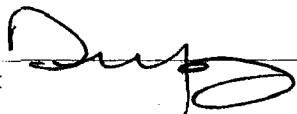
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	22,500	968

ND = Parameter not detected at the stated detection limit.

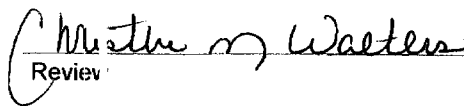
References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm, 3' Below Treatment Zone.**

Analyst



Review



Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #2	Date Reported:	10-20-09
Laboratory Number:	52114	Date Sampled:	10-14-09
Chain of Custody No:	8191	Date Received:	10-14-09
Sample Matrix:	Soil	Date Extracted:	10-20-09
Preservative:	Cool	Date Analyzed:	10-20-09
Condition:	Intact	Analysis Needed:	TPH-418.1

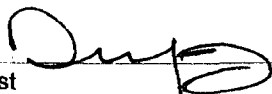
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	19,700	96.8

ND = Parameter not detected at the stated detection limit.

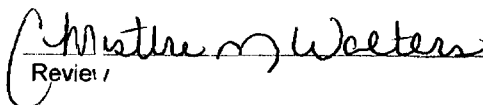
References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: Landfarm, 3' Below Treatment Zone.

Analyst



Reviewer



Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	10-23-09
Laboratory Number:	10-20-TPH.QA/QC 52159	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	10-20-09
Preservative:	N/A	Date Extracted:	10-20-09
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF	C-Cal RF	% Difference	Accept Range
	10-12-09	10-20-09	1,730	1,630	5.8%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	9.7

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept Range
TPH	415	360	13.3%	+/- 30%

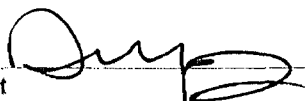
Spike Conc. (mg/Kg)	Sample	Spike Added	Sample Result	% Recovery	Accept Range
TPH	415	2,000	1,070	85.7%	80 - 120%

ND = Parameter not detected at the stated detection limit.

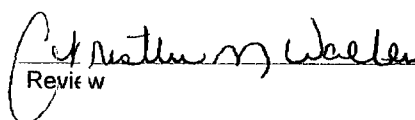
References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: QA/QC for Samples 52095, 52096, 52113, 52114, and 52159 - 52164.

Analyst



Review





envirotech
Analytical Laboratory

**EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS**

Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #1	Date Reported:	10-20-09
Laboratory Number:	52116	Date Sampled:	10-14-09
Chain of Custody No:	8191	Date Received:	10-14-09
Sample Matrix:	Soil	Date Extracted:	10-20-09
Preservative:	Cool	Date Analyzed:	10-20-09
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	26,300	83.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm, Treatment Zone.**

Analyst

Reviewer

Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #2	Date Reported:	10-20-09
Laboratory Number:	52117	Date Sampled:	10-14-09
Chain of Custody No:	8191	Date Received:	10-14-09
Sample Matrix:	Soil	Date Extracted:	10-20-09
Preservative:	Cool	Date Analyzed:	10-20-09
Condition:	Intact	Analysis Needed:	TPH-418.1

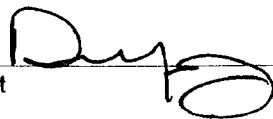
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	22,800	83.0

ND = Parameter not detected at the stated detection limit.

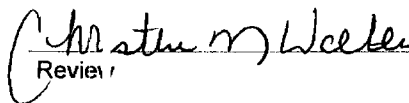
References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Landfarm, Treatment Zone.**

Analyst



Reviewer





envirotech

Analytical Laboratory

EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	10-23-09
Laboratory Number:	10-20-TPH.QA/QC 52175	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	10-20-09
Preservative:	N/A	Date Extracted:	10-20-09
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF	C-Cal RF	% Difference	Accept. Range
	10-12-09	10-20-09	1,730	1,630	5.8%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	8.3

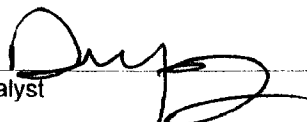
Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	346	422	22.0%	+/- 30%

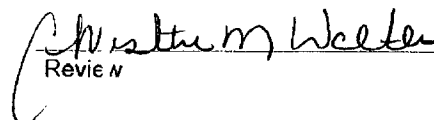
Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
TPH	346	2,000	1,420	103%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: QA/QC for Samples 52116, 52117, 52175, 52176, and 52182 - 52183.

Analyst 

Review 



Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Background	Date Reported:	10-23-09
Lab ID#:	52115	Date Sampled:	10-14-09
Sample Matrix:	Soil	Date Received:	10-14-09
Preservative:	Cool	Date Analyzed:	10-16-09
Condition:	Intact	Chain of Custody:	8191

Parameter

Concentration (mg/Kg)

Total Chloride

10

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm.**

Analyst

Review

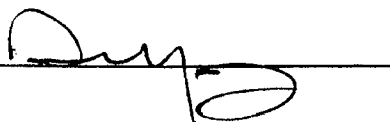
Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #1	Date Reported:	10-23-09
Lab ID#:	52116	Date Sampled:	10-14-09
Sample Matrix:	Soil	Date Received:	10-14-09
Preservative:	Cool	Date Analyzed:	10-16-09
Condition:	Intact	Chain of Custody:	8191

Parameter**Concentration (mg/Kg)****Total Chloride****200**

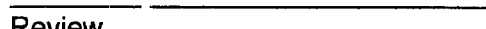
Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm, Treatment Zone.**

Analyst



Review



Client:	Key Energy Disposal	Project #:	98065-0013
Sample ID:	Cell #2	Date Reported:	10-23-09
Lab ID#:	52117	Date Sampled:	10-14-09
Sample Matrix:	Soil	Date Received:	10-14-09
Preservative:	Cool	Date Analyzed:	10-16-09
Condition:	Intact	Chain of Custody:	8191

Parameter**Concentration (mg/Kg)****Total Chloride****560**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm, Treatment Zone.**

Analyst

Review

Client:	Key Energy	Project #:	98065-0013
Sample ID:	1	Date Reported:	07-16-09
Laboratory Number:	50869	Date Sampled:	07-15-09
Chain of Custody:	7429	Date Received:	07-15-09
Sample Matrix:	Soil	Date Analyzed:	07-16-09
Preservative:	Cool	Date Extracted:	07-15-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	2.5	0.9
Toluene	13.0	1.0
Ethylbenzene	15.4	1.0
p,m-Xylene	38.2	1.2
o-Xylene	19.5	0.9
Total BTEX	88.6	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	97.0 %
	1,4-difluorobenzene	97.0 %
	Bromochlorobenzene	97.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Landfarm

Analyst

Review

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Client:	Key Energy	Project #:	98065-0013
Sample ID:	2	Date Reported:	07-16-09
Laboratory Number:	50870	Date Sampled:	07-15-09
Chain of Custody:	7429	Date Received:	07-15-09
Sample Matrix:	Soil	Date Analyzed:	07-16-09
Preservative:	Cool	Date Extracted:	07-15-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	7.5	0.9
Toluene	11.9	1.0
Ethylbenzene	12.1	1.0
p,m-Xylene	20.8	1.2
o-Xylene	14.9	0.9
Total BTEX	67.2	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	99.0 %
	1,4-difluorobenzene	99.0 %
	Bromochlorobenzene	99.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Landfarm

Analyst

Review



EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	1	Date Reported:	07-16-09
Laboratory Number:	50869	Date Sampled:	07-15-09
Chain of Custody No:	7429	Date Received:	07-15-09
Sample Matrix:	Soil	Date Extracted:	07-15-09
Preservative:	Cool	Date Analyzed:	07-16-09
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	01.1	0.2
Diesel Range (C10 - C28)	1,310	0.1
Total Petroleum Hydrocarbons	1,410	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm**

Analyst

Review



EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

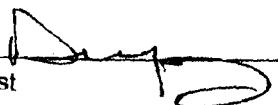
Client:	Key Energy	Project #:	98065-0013
Sample ID:	2	Date Reported:	07-16-09
Laboratory Number:	50870	Date Sampled:	07-15-09
Chain of Custody No:	7429	Date Received:	07-15-09
Sample Matrix:	Soil	Date Extracted:	07-15-09
Preservative:	Cool	Date Analyzed:	07-16-09
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	1.6	0.2
Diesel Range (C10 - C28)	14.6	0.1
Total Petroleum Hydrocarbons	36.2	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm**


Analyst


Reviewer

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #	N/A
Sample ID:	07-16-09 QA/QC	Date Reported:	07-16-09
Laboratory Number:	50869	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-16-09
Condition:	N/A	Analysis Requested:	TPH

Gasoline Range C5 - C10	05-07-07	1.0270E+003	1.0274E+003	0.04%	0 - 15%
Diesel Range C10 - C28	05-07-07	1.0689E+003	1.0694E+003	0.04%	0 - 15%

Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

Gasoline Range C5 - C10	91.1	89.5	1.1 %	0 - 30%
Diesel Range C10 - C28	1,350	1,340	0.7 %	0 - 30%

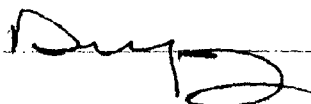
Gasoline Range C5 - C10	91.1	250	3.0	99.7%	75 - 125%
Diesel Range C10 - C28	1,350	250	1,130	102%	75 - 125%

ND - Parameter not detected at the stated detection limit.

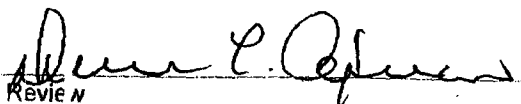
References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 50869, 50870, and 50873.

Analyst



Review



**EPA METHOD 8015 Modified
 Nonhalogenated Volatile Organics
 Total Petroleum Hydrocarbons**

Client:	Key Energy Disposal	Project #:	98065-0004
Sample ID:	Cell #1	Date Reported:	04-20-09
Laboratory Number:	49670	Date Sampled:	04-14-09
Chain of Custody No:	6797	Date Received:	04-14-09
Sample Matrix:	Soil	Date Extracted:	04-16-09
Preservative:	Cool	Date Analyzed:	04-17-09
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	111.8	0.2
Diesel Range (C10 - C28)	791	0.1
Total Petroleum Hydrocarbons	811	0.2

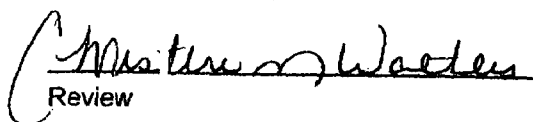
ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Energy Disposal Landfarm**

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Analyst 

Review 

**EPA METHOD 8015 Modified
 Nonhalogenated Volatile Organics
 Total Petroleum Hydrocarbons**

Client:	Key Energy Disposal	Project #:	98065-0004
Sample ID:	Cell #2	Date Reported:	04-20-09
Laboratory Number:	49671	Date Sampled:	04-14-09
Chain of Custody No:	6797	Date Received:	04-14-09
Sample Matrix:	Soil	Date Extracted:	04-16-09
Preservative:	Cool	Date Analyzed:	04-17-09
Condition:	Intact	Analysis Requested:	8015 TPH

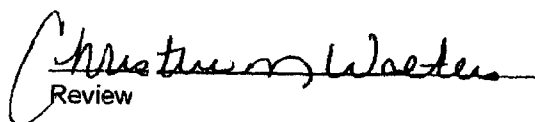
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Energy Disposal Landfarm**


 Analyst


 Review

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #	N/A
Sample ID:	04-17-09 QA/QC	Date Reported:	04-20-09
Laboratory Number:	49670	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-17-09
Condition:	N/A	Analysis Requested:	TPH

Gasoline Range C5 - C10	05-07-07	9.6265E+002	9.6304E+002	0.04%	0 - 15%
Diesel Range C10 - C28	05-07-07	1.0308E+003	1.0312E+003	0.04%	0 - 15%

Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

Gasoline Range C5 - C10	19.8	18.6	6.1%	0 - 30%
Diesel Range C10 - C28	791	774	2.1%	0 - 30%

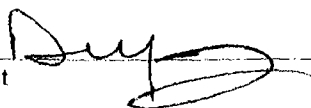
Gasoline Range C5 - C10	19.8	250	265	98.1%	75 - 125%
Diesel Range C10 - C28	791	250	1,020	98.0%	75 - 125%

ND - Parameter not detected at the stated detection limit.

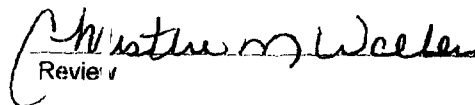
References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 49670 - 49673, 49684, 49687, 49694, and 49697 - 49699.

Analyst



Reviewer



Client:	Key Energy Disposal	Project #:	98065-0004
Sample ID:	Cell #1	Date Reported:	04-20-09
Laboratory Number:	49670	Date Sampled:	04-14-09
Chain of Custody:	6797	Date Received:	04-14-09
Sample Matrix:	Soil	Date Analyzed:	04-17-09
Preservative:	Cool	Date Extracted:	04-16-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	2.7	0.9
Toluene	9.6	1.0
Ethylbenzene	12.0	1.0
p,m-Xylene	25.4	1.2
o-Xylene	20.2	0.9
Total BTEX	69.9	

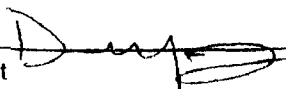
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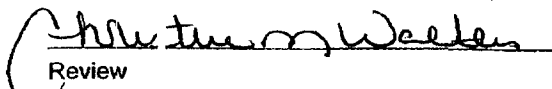
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	97.0 %
	1,4-difluorobenzene	97.0 %
	Bromochlorobenzene	97.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Energy Disposal Landfarm**

Analyst 

Review 

Client:	Key Energy Disposal	Project #	98065-0004
Sample ID:	Cell #2	Date Reported:	04-20-09
Laboratory Number:	49671	Date Sampled:	04-14-09
Chain of Custody:	6797	Date Received:	04-14-09
Sample Matrix:	Soil	Date Analyzed:	04-17-09
Preservative:	Cool	Date Extracted:	04-16-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	2.0	0.9
Toluene	37.8	1.0
Ethylbenzene	35.4	1.0
p,m-Xylene	52.7	1.2
o-Xylene	30.4	0.9
Total BTEX	158	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	98.0 %
	1,4-difluorobenzene	98.0 %
	Bromochlorobenzene	98.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Energy Disposal Landfarm**

Analyst

Review

Client:	N/A	Project #:	N/A
Sample ID:	04-17-BT QA/QC	Date Reported:	04-20-09
Laboratory Number:	49670	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-17-09
Condition:	N/A	Analysis:	BTEX

Benzene	6.8981E+006	6.9119E+006	0.2 %	ND	0.1
Toluene	6.2802E+006	6.2928E+006	0.2 %	ND	0.1
Ethylbenzene	5.3819E+006	5.3927E+006	0.2 %	ND	0.1
p,m-Xylene	1.4303E+007	1.4331E+007	0.2 %	ND	0.1
o-Xylene	5.2124E+006	5.2228E+006	0.2 %	ND	0.1

Benzene	2.7	2.8	3.7 %	0 - 30%	0.9
Toluene	9.6	9.4	2.1 %	0 - 30%	1.0
Ethylbenzene	12.0	11.6	3.3 %	0 - 30%	1.0
p,m-Xylene	25.4	25.1	1.2 %	0 - 30%	1.2
o-Xylene	20.2	20.0	1.0 %	0 - 30%	0.9

Benzene	2.7	50.0	51.2	97.2%	39 - 150
Toluene	9.6	50.0	57.4	96.3%	46 - 148
Ethylbenzene	12.0	50.0	60.9	98.2%	32 - 160
p,m-Xylene	25.4	100	124	98.6%	46 - 148
o-Xylene	20.2	50.0	67.2	95.7%	46 - 148

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 49670 - 49673, 49684, 49687, 49694, and 49697 - 49699.

Analyst

Review

**EPA METHOD 8015 Modified
 Nonhalogenated Volatile Organics
 Total Petroleum Hydrocarbons**

Client:	Key Energy Disposal	Project #:	98065-0007
Sample ID:	1	Date Reported:	01-23-09
Laboratory Number:	48749	Date Sampled:	01-15-09
Chain of Custody No:	6190	Date Received:	01-15-09
Sample Matrix:	Soil	Date Extracted:	01-19-09
Preservative:	Cool	Date Analyzed:	01-20-09
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	16.4	0.1
Total Petroleum Hydrocarbons	16.4	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **East/West Side Middle Landfarm**

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Analyst

Review

**EPA METHOD 8015 Modified
 Nonhalogenated Volatile Organics
 Total Petroleum Hydrocarbons**

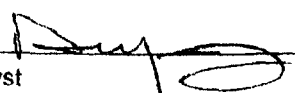
Client:	Key Energy Disposal	Project #:	98065-0007
Sample ID:	2	Date Reported:	01-23-09
Laboratory Number:	48750	Date Sampled:	01-15-09
Chain of Custody No:	6190	Date Received:	01-15-09
Sample Matrix:	Soil	Date Extracted:	01-19-09
Preservative:	Cool	Date Analyzed:	01-20-09
Condition:	Intact	Analysis Requested:	8015 TPH

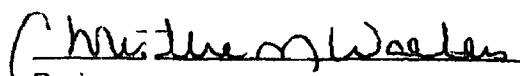
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	1,115	0.2
Diesel Range (C10 - C28)	1,380	0.1
Total Petroleum Hydrocarbons	1,400	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **East/West Side Middle Landfarm**


 Analyst


 Review

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #	N/A
Sample ID:	01-20-09 QA/QC	Date Reported:	01-23-09
Laboratory Number:	48749	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-20-09
Condition:	N/A	Analysis Requested:	TPH

Gasoline Range C5 - C10	05-07-07	1.0047E+003	1.0051E+003	0.04%	0 - 15%
Diesel Range C10 - C28	05-07-07	1.0367E+003	1.0371E+003	0.04%	0 - 15%

Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%
Diesel Range C10 - C28	16.4	16.3	0.6%	0 - 30%

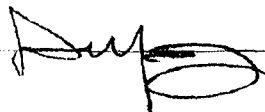
Gasoline Range C5 - C10	ND	250	248	99.2%	75 - 125%
Diesel Range C10 - C28	16.4	250	262	98.5%	75 - 125%

ND - Parameter not detected at the stated detection limit.

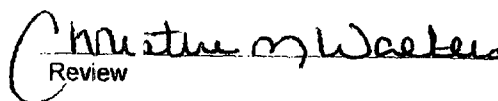
References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 48749 - 48753, 48760, and 48771 - 48774

Analyst



Review



Client:	Key Energy Disposal	Project #:	98065-0007
Sample ID:	1	Date Reported:	01-23-09
Laboratory Number:	48749	Date Sampled:	01-15-09
Chain of Custody:	6190	Date Received:	01-15-09
Sample Matrix:	Soil	Date Analyzed:	01-20-09
Preservative:	Cool	Date Extracted:	01-19-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	1.3	0.9
Toluene	13.8	1.0
Ethylbenzene	4.9	1.0
p,m-Xylene	18.2	1.2
o-Xylene	12.2	0.9
Total BTEX	50.4	

ND - Parameter not detected at the stated detection limit.

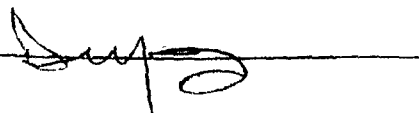
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	96.0 %
	1,4-difluorobenzene	96.0 %
	Bromochlorobenzene	96.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **East/West Side Middle Landfarm**

Analyst



Review





Client:	Key Energy Disposal	Project #:	98065-0007
Sample ID:	2	Date Reported:	01-23-09
Laboratory Number:	48750	Date Sampled:	01-15-09
Chain of Custody:	6190	Date Received:	01-15-09
Sample Matrix:	Soil	Date Analyzed:	01-20-09
Preservative:	Cool	Date Extracted:	01-19-09
Condition:	Intact	Analysis Requested:	BTEX

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **East/West Side Middle Landfarm**

Analyst 

Christine Woelke
Review



Project #:	N/A
Date Reported:	01-23-09
Date Sampled:	N/A
Date Received:	N/A
Date Analyzed:	01-20-09
Analysis:	BTEX

Review

Hansen, Edward J., EMNRD

From: Hansen, Edward J., EMNRD
Sent: Thursday, May 07, 2009 5:26 PM
To: 'lmolleur@keyenergy.com'
Subject: Key Energy Landfarm (OCD Permit #NM-01-0009) sampling

Loren,

I have faxed this letter to Steve Wilson in Farmington, but I also wanted to email it to someone with Key (Steve said he does not have an email as of yet).

Dear Mr. Wilson:

The New Mexico Oil Conservation Division (OCD) has received your landfarm cell quarterly monitoring report for the above-referenced site, dated April 27, 2009, and has conducted a review of the report. The monitoring report, received February 3, 2009, indicates that Key Energy Services has completed the monitoring requirements as specified in the permit (NM-01-0009) for the facility. However, please keep in mind that Key must also follow the requirements of 19.15.36 NMAC (Part 36) (OCD's "Surface Waste Management Rule") if your permit does not specifically address a particular requirement of Part 36.

In particular, Key must collect soil samples from each cell in both the vadose zone (at 3' below the surface) (referred to as the "treatment zone" in your permit) and the treatment zone (top 6") (as specified in Part 36).

In accordance with your permit, the vadose zone monitoring must include TPH, BTEX on a quarterly basis and major cations/anions and WQCC metals on an annual basis [this should include all 12 metals listed (excluding U) in Subsections A and B of 20.6.2.3103 NMAC (WQCC rule)]. In addition, in accordance with 19.15.36.15.E.(2) NMAC, the vadose zone monitoring must include chlorides on a semi-annual basis. The chloride concentration must be compared to the background soil concentrations at the facility. This will necessitate the collection of a background sample for chloride.

In accordance with 19.15.36.15.D NMAC, the treatment zone monitoring must include TPH and chlorides on a semi-annual basis. (This is a "new" requirement under Part 36.)

Please be sure to include the chlorides in your next quarterly sampling event for the vadose zone and start the semi-annual treatment zone monitoring at that time.

In addition, please be aware of the contaminated soil acceptance limits for chloride concentrations as specified in 19.15.36.15.A NMAC.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

KEY ENERGY SERVICES

YARD 0455

P O BOX 900
5651 US HWY 64
FARMINGTON, NEW MEXCIO 87499
OFFICE (505) 566-5352 FAX (505) 327-4962

DATE 4/24/2009

TIME:

TO: COMPANY

PERSON Brad Jones

PHONE _____ FAX 505-⁴⁷⁶⁻³⁴⁶²~~476-3487~~

FROM: Key Disposal

MESSAGE: Steve Wilson

Steve Wilson
505-334-6186

505-334-6186

TOTAL NUMBER OF PAGES



**EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons**

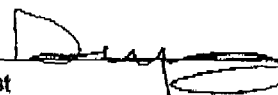
Client:	Key Energy Disposal	Project #:	98065-0004
Sample ID:	Cell #1	Date Reported:	04-20-09
Laboratory Number:	49670	Date Sampled:	04-14-09
Chain of Custody No:	6797	Date Received:	04-14-09
Sample Matrix:	Soil	Date Extracted:	04-16-09
Preservative:	Cool	Date Analyzed:	04-17-09
Condition:	Intact	Analysis Requested:	8015 TPH

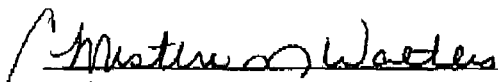
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	19.8	0.2
Diesel Range (C10 - C28)	791	0.1
Total Petroleum Hydrocarbons	811	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Energy Disposal Landfarm**


Analyst


Review



**EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons**

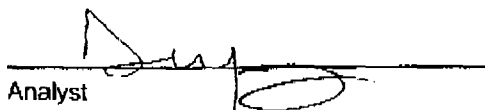
Client:	Key Energy Disposal	Project #:	98065-0004
Sample ID:	Cell #2	Date Reported:	04-20-09
Laboratory Number:	49671	Date Sampled:	04-14-09
Chain of Custody No:	6797	Date Received:	04-14-09
Sample Matrix:	Soil	Date Extracted:	04-16-09
Preservative:	Cool	Date Analyzed:	04-17-09
Condition:	Intact	Analysis Requested:	8015 TPH

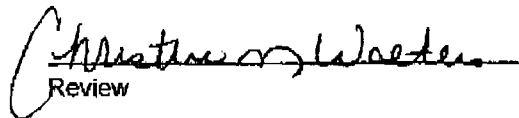
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Key Energy Disposal Landfarm


Analyst


Review



EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	04-17-09 QA/QC	Date Reported:	04-20-09
Laboratory Number:	49670	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-17-09
Condition:	N/A	Analysis Requested:	TPH

Gasoline Range C5 - C10	05-07-07	9.6265E+002	9.6304E+002	0.04%	0 - 15%
Diesel Range C10 - C28	05-07-07	1.0308E+003	1.0312E+003	0.04%	0 - 15%

Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1
Total Petroleum Hydrocarbons	ND	0.2

Gasoline Range C5 - C10	19.8	18.6	6.1%	0 - 30%
Diesel Range C10 - C28	791	774	2.1%	0 - 30%

Gasoline Range C5 - C10	19.8	250	265	98.1%	75 - 125%
Diesel Range C10 - C28	791	250	1,020	98.0%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 49670 - 49673, 49684, 49687, 49694, and 49697 - 49699.

Analyst

Review

**EPA METHOD 8021
AROMATIC VOLATILE ORGANICS**

Client:	Key Energy Disposal	Project #:	98065-0004
Sample ID:	Cell #1	Date Reported:	04-20-09
Laboratory Number:	48670	Date Sampled:	04-14-09
Chain of Custody:	6797	Date Received:	04-14-09
Sample Matrix:	Soil	Date Analyzed:	04-17-09
Preservative:	Cool	Date Extracted:	04-16-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	2.7	0.9
Toluene	9.6	1.0
Ethylbenzene	12.0	1.0
p,m-Xylene	25.4	1.2
o-Xylene	20.2	0.9
Total BTEX	69.9	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	97.0 %
	1,4-difluorobenzene	97.0 %
	Bromochlorobenzene	97.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Key Energy Disposal Landfarm

Analyst

A handwritten signature in black ink, appearing to be 'D. [unclear]', written over a horizontal line.

Review

A handwritten signature in black ink, appearing to be 'Christopher M. [unclear]', written over a horizontal line.



**EPA METHOD 8021
AROMATIC VOLATILE ORGANICS**

Client:	Key Energy Disposal	Project #:	98065-0004
Sample ID:	Cell #2	Date Reported:	04-20-09
Laboratory Number:	49671	Date Sampled:	04-14-09
Chain of Custody:	6797	Date Received:	04-14-09
Sample Matrix:	Soil	Date Analyzed:	04-17-09
Preservative:	Cool	Date Extracted:	04-16-09
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	2.0	0.9
Toluene	37.8	1.0
Ethylbenzene	35.4	1.0
p,m-Xylene	52.7	1.2
o-Xylene	30.4	0.9
Total BTEX	158	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	98.0 %
	1,4-difluorobenzene	98.0 %
	Bromochlorobenzene	98.0 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Key Energy Disposal Landfarm

Analyst

Review



**EPA METHOD 8021
AROMATIC VOLATILE ORGANICS**

Client:	N/A	Project #:	N/A
Sample ID:	04-17-BT QA/QC	Date Reported:	04-20-09
Laboratory Number:	49670	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-17-09
Condition:	N/A	Analysis:	BTEX

Benzene	6.8981E+008	6.9118E+008	0.2%	ND	0.1
Toluene	6.2802E+008	6.2928E+008	0.2%	ND	0.1
Ethylbenzene	5.3819E+008	5.3927E+008	0.2%	ND	0.1
p,m-Xylene	1.4303E+007	1.4331E+007	0.2%	ND	0.1
o-Xylene	5.2124E+006	5.2228E+006	0.2%	ND	0.1

Benzene	2.7	2.8	3.7%	0 - 30%	0.9
Toluene	9.6	9.4	2.1%	0 - 30%	1.0
Ethylbenzene	12.0	11.6	3.3%	0 - 30%	1.0
p,m-Xylene	25.4	25.1	1.2%	0 - 30%	1.2
o-Xylene	20.2	20.0	1.0%	0 - 30%	0.9

Benzene	2.7	50.0	51.2	97.2%	39 - 150
Toluene	9.6	50.0	57.4	96.3%	46 - 148
Ethylbenzene	12.0	50.0	60.9	98.2%	32 - 160
p,m-Xylene	25.4	100	124	98.6%	46 - 148
o-Xylene	20.2	50.0	67.2	95.7%	46 - 148

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1998.

Comments: QA/QC for Samples 49670 - 49673, 49684, 49687, 49694, and 49697 - 49699.

Analyst

Review